student desiring to use the machine will depress the start button **48**. This starts the timing and sequence unit **44**, which then controls the entire operation of the machine, and automatically displays a series of illustrations as, for example, a series of ten separate frames of the film shown in Figure 2. The first function of the timer **44** will be to close the power circuits which extend from the plug **45** to the projector **18**, the photoelectric cell, amplifier **43**, counter **47**, question or frame number indicator **46**, and to each of the several designation or answer selector circuits **51** to **56** inclusive. The projector lamp will be energized and will project on the screen the central area **24** of a given frame of the film. This will display the illustration, the question, and the series of multiple-choice answers or designations, but the identified correct answer or designation portion of the film **25** will be concealed by the shutter **27**. Also a light beam will be projected through the transparent correct designation or answer scoring zone, but is stopped by one of the shutters **33**. The student will observe the illustration, choose what he believes to be the correct answer from the multiple-choice answers, and depress the selector button **13** numbered to correspond with the answer or designation he has selected on the illustration.

If a correct designation or answer is chosen, and the contacts **15** and **16** are closed, the winding of the solenoid **34** is energized and the corresponding shutter **33** moved out of position, the beam of light projected through the corresponding correct designation scoring zone will reach the photocell **42**. The photocell is connected to the circuit of the counter through the amplifier **43** and the timing unit **44** so that when the photoelectric cell is energized the scoring unit **47** will register a correct score.

When an incorrect designation or answer selector button **13** is depressed, the circuit through the solenoid winding **34** associated with that particular button and with the particular incorrect designation scoring zone on the film will be energized and its shutter will be moved out of the path of travel of the light channel. However, since the designation or answer is incorrect, no light will be transmitted through the opaque film zone, and light transmitted through the correct channel will be blocked by one of the other shutters. Thus no light will reach one of the photoelectric cells **42**, and no score will be registered thereby.

When the allotted time for actuating the correct designation or answer button **13** has expired, the timer **44** will automatically register an incorrect response, energize the question counting unit **46** to indicate that the second question is about to be presented, and will energize the motor of the projector **18** to advance the film to the next frame. It is to be noted, however, that the timing and sequence unit **44** includes means to energize the solenoid coil **29**, open the correct designation or answer concealing shutter **27** and display the correct designation or answer on the screen after a choice has been made by operation of one of the selector buttons **13**.

When the entire series of 10 frames of the film has been completed, the timer and sequence unit **44** breaks the circuits to the scoring unit **47**, projector **18**, amplifier **43**, question number indicator **46**, and will also break an internal holding circuit across the pushbutton **48** so that further operation of machine can be accomplished only by beginning a new cycle. This is done by depressing the starting button. The completion of the cycle will leave the final total score registered on the counting mechanism so that it may be observed after the cycle has ended.

When the timing or starting button **48** is again depressed to start a new cycle, the timer will momentarily energize the counter to reset it to zero simultaneously with the projection of the first picture on the screen.

Since it has heretofore been pointed out that the particular structure and arrangement of parts illustrated in connection with this invention are intended for purposes of illustration and are subject to many modifications and variations, the scope of the inventive thought should be considered as limited only by the prior art and the terms of the appended claims.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

I claim:

1. In apparatus including a closed cabinet and a translucent screen comprising a portion of said cabinet with an optical projector within the said cabinet to project light through a film to project the film image on to the inner surface of said screen, a film comprising a multiplicity of individual frames inter-connected to form a continuous endless loop, each of said frames bearing a visual representation, a plurality of designations including correct and incorrect designations relating to said visual representation, and a scoring portion having scoring zones thereon corresponding to the aforementioned designations, the correct and incorrect scoring zones being of unlike light transparency, and scoring means including means actuated by light transmitted through a correct designation scoring zone for registering a score.

2. In apparatus including a closed cabinet and a translucent screen comprising a portion of said cabinet and an optical projector within said cabinet to project light through a film to project the film image on to the inner surface of said screen, a film bearing a visual representation, a plurality of designations including correct and incorrect designations and an identified correct designation relating to said visual representation, and a scoring portion having scoring zones corresponding to said correct and incorrect designations, and scoring means including a plurality of separate individually operable shutters and manually operable controls corresponding to and adapted to actuate said shutters to permit the passage of any light passing through the scoring portion of the film to register a score, a designation concealing shutter to conceal the identified correct designation projected from the film and means responsive to the operation of any one of the aforementioned manually operable controls to open the designation concealing shutter.

3. In apparatus including an optical projector and screen, a film bearing an illustration, a plurality of designations and an identified correct designation relating to said illustration, and a scoring portion, scoring means including a plurality of separate individually operable shutters and manually operable controls corresponding to and adapted to actuate said shutters to permit the passage of any light passing through the scoring portion of the film to register a score, a designation concealing shutter to conceal the